

**Notice of Allowability**

Application No.

10/696,789

Examiner

Benjamin Buss

Applicant(s)

FILEV, DIMITAR

Art Unit

2129

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/17/2006.
2. ☒ The allowed claim(s) is/are 1, 3-4, 6-14, 16-19 and 22-25.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 5. <input type="checkbox"/> Notice of Informal Patent Application  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>20060919</u> |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment  |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                       |
|  | 9. <input type="checkbox"/> Other _____  |

**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with James Proscia (Reg. No. 47,010) on 9/20/2006.

The application has been amended as follows:

- Claim 1:

- o Line 5: Changed "neutral" to -- neural --.
- o Line 23: Changed "neural network parameters." to -- "neural network parameters; and --.
- o Added the limitation:

wherein the paint optimization function is given by:

$$J = \alpha \sum (FB - FT)^2 + (1 - \alpha) (\sum FF / \sum FB)$$

wherein FB is an average thickness calculated from the functional relationship, FT is a target average film thickness, FF is the amount of paint sprayed, and  $\alpha$  is a weighting factor with a value between 0 and 1.

- Claim 4:

- o Lines 2-3: Changed "first neural layer defined by equation 1 to give a first set of outputs  $a_i$ ." to -- first neural layer to give a first set of outputs  $a_i$  defined by: --.
- o Line 4: Changed " $a_i$ " to --  $a_i$  -- to match the equation given on page 9 of the specification.
- o Line 4: Deleted the label "1" to the right of the equation.
- o Line 5: Changed "outputs  $a_i$ " to -- outputs  $a_i$  --.
- o Lines 5-6: Changed "second neural layer defined by equation 2 to give outputs O" to -- second neural layer to give output O defined by: --.
- o Line 7: Deleted the label "2" to the right of the equation.
- o Line 11: Changed " $W_{2i,k}$ " to --  $W_{j,k}^2$  --.

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- Claim 5:
  - o CANCELLED.
- Claim 14:
  - o Line 11: Changed "layer" to -- layers --.
  - o Line 26: Changed "outputs O" to -- outputs O: --.
  - o Line 31: Changed " $W_{i,k}^2$ " to --  $W_{j,k}^2$  --.
- Claim 18:
  - o Line 4: Changed "thereof" to -- of the above --.
- Claim 19:
  - o Line 5: Changed "neutral" to -- neural --.
  - o Line 25: Changed "outputs O" to -- outputs O: --.
  - o Line 30: Changed " $W_{i,k}^2$ " to --  $W_{j,k}^2$  --.
- Claim 21:
  - o CANCELLED.
- Claim 23:
  - o Line 4: Changed "thereof" to -- of the above --.
- Claim 24:
  - o Line 4: Changed "thereof" to -- of the above --.

2. The following is an examiner's statement of reasons for allowance: Claims 1, 3-4, 6-14, 16-19, and 22-25 are considered allowable since when reading the claims in light of the specification, as per MPEP §2111.01 or In re Sneed, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983), none of the references of record alone or in combination discloses or suggest the combination of limitations specified in the independent claims including either wherein the paint optimization function is given by:  $J = \alpha \sum (FB-FT)^2 + (1 - \alpha)(\sum FF/\sum FB)$  wherein FB is an average thickness calculated from the functional relationship, FT is a target average film thickness, FF is the amount of paint sprayed,  $\alpha$  is a weighting factor with a value between 0 and 1 (supported at e.g., pages 13-14), as specified in claim 1, or wherein the neural network operates on a plurality of groups of values  $P_k$  through a first

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neural layer to give a first set of outputs  $a_i$ :  $a_i = f^1(W_{i,k}^1 P_k + b_i^1)$  the outputs  $a_i$  being operated on by a second neural layer to give outputs  $O$ :  $O = f^2(W_{j,k}^2 P_k + b_j^2)$  wherein  $f^1$  is a transfer function for the first neural layer,  $f^2$  is a transfer function for the second neural layer,  $i$  is an index number with values from 1 to the number of neurons in the first neural layer,  $j$  is an index number with values from 1 to the number of neurons in the second neural layer,  $W_{i,k}^1$  are adjustable neural network parameters for the first layer,  $W_{j,k}^2$  are adjustable neural network parameters for the second neural layer,  $b_i^1$  are bias factors for the first neural layer, and  $b_j^2$  are bias factors for the second neural layer (supported at, e.g., pages 9-10), as specified in claims 14 and 19.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin Buss whose telephone number is 571-272-5831. The examiner can normally be reached on M-F 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on 571-272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Benjamin J. Buss  
Examiner  
Art Unit 2129

  
DAVID VINCENT  
SUPERVISORY PATENT EXAMINER

BJB